

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|-------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|---------|------------------|
| S336 | 56 | S335 not S334 | US-PGPUB; USPAT | OR | ON | 2005/08/26 14:51 |
| S335 | 73 | ((heat\$1spreader or (heat adj spreader)) with (bottom near2 (carrier or pcb or substrate))) and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$1chip)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 14:51 |
| S334 | 31 | ((heat\$1spreader or (heat adj spreader)) with ((center or middle) near2 (carrier or pcb or substrate))) and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$1chip)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 14:51 |
| S194 | 45 | S192 not S190 | US-PGPUB; USPAT | OR | ON | 2005/08/26 14:51 |
| S358 | 58 | S357 and (@ad<"20040703" or @rlad<"20040703") and ((bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$1chip)) and (stiffen or stiffener or stiffening) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S357 | 1169 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with ((bottom or backside or back\$1side) with (support or pcb or printed or ceramic or board))) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S356 | 20 | S355 and (@ad<"20040703" or @rlad<"20040703") and ((bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$1chip)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S355 | 97 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with ((bottom or backside or back\$1side) adj (support or pcb or printed or ceramic or board))) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S354 | 43 | S353 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$1chip)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S353 | 49 | "5909056" | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |

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| S35 2 | 39 | S351 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$1chip)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S35 1 | 67 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with ((support or pcb or printed or ceramic or board) near3 (bottom or backside or back\$1side)) with (chip or die)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S35 0 | 27 | S349 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$1chip)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S34 9 | 47 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with ((support or pcb or printed or ceramic or board) near2 (bottom or backside or back\$1side)) with (chip or die)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S34 8 | 14 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with ((support or pcb or printed or ceramic or board) near (bottom or backside or back\$1side)) with (chip or die)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S34 7 | 15 | S346 not S338 | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S34 6 | 16 | S345 not S343 | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S34 5 | 24 | S344 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$1chip:)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S34 4 | 133 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with ((support or pcb or printed or ceramic or board) near2 (bottom or backside or back\$1side)) not (chip or die)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S34 3 | 39 | S342 not S340 | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |

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| S34 2 | 55 | S341 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$1chip)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S34 1 | 482 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with ((support or pcb or printed or ceramic or board) with (bottom or backside or back\$1side)) not (chip or die)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S34 0 | 16 | S339 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$1chip)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S33 9 | 64 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with ((support or pcb or printed or ceramic or board) near (bottom or backside or back\$1side)) not (chip or die)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S33 8 | 11 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with (support or pcb or printed or ceramic or board)) and S337 | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S33 7 | 22 | "5991156" "5693572" | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S25 1 | 36 | S250 not (S245 or S240 or S236 or S233 or S229 or S227 or S220) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:00 |
| S35 9 | 42 | S358 not (S356 or S354 or S352 or S350 or S348 or S347 or S340) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:01 |
| S36 1 | 1 | "20050174744" and bolster | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:03 |
| S37 0 | 0 | S369 not (S359 or S336) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:12 |
| S36 9 | 3 | S368 and (((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with (substrate near2 (bottom or backside or back\$1side))) same ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) near3 substrate)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:12 |
| S36 8 | 24 | S367 not S364 | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:12 |

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| S366 | 28 | S365 and (stiff or stiffener or stiffening or stiffened or stiffen) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:12 |
| S365 | 336 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with (substrate near2 (bottom or backside or back\$1side))) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:12 |
| S364 | 4 | S363 and (stiff or stiffener or stiffening or stiffened or stiffen) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:12 |
| S363 | 142 | S362 and (@ad<"20040703" or @rlad<"20040703") | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:12 |
| S362 | 142 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with (substrate near (bottom or backside or back\$1side))) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:12 |
| S360 | 39 | S359 not S336 | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:12 |
| S295 | 2 | S294 and (((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with (substrate near2 (bottom or backside or back\$1side))) same ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) near3 substrate)) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:12 |
| S371 | 1 | ((heat\$1sink or (heat adj sink)) with (cte or coefficient) with ("same" near (carrier or substrate)))) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:16 |
| S76 | 1 | S41 and ((heat\$1sink or (heat adj sink)) with (cte or coefficient) with ("same" near (carrier or substrate))) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:16 |
| S372 | 10 | ((heat\$1sink or (heat adj sink)) with (cte or coefficient) with ((match or matching or matched or equal) near (carrier or substrate)))) | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:17 |
| S367 | 28 | S366 and (@ad<"20040703" or @rlad<"20040703") | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:17 |
| S373 | 10 | S372 and (@ad<"20040703" or @rlad<"20040703") | US-PGPUB; USPAT | OR | ON | 2005/08/26 15:23 |
| S40 | 1 | ((heat\$1sink or (heat adj sink)) with (cte or coefficient) with ("same" near (carrier or substrate))) | US-PGPUB; USPAT | OR | ON | 2005/09/03 19:11 |

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| S37 5 | 1 | ((heat\$1sink or (heat adj sink)) with (cte or coefficient) with ("same" near (carrier or substrate))) | US-PGPUB; USPAT | OR | ON | 2005/09/03 19:12 |
| S37 6 | 0 | ((heat\$1sink or (heat adj sink)) with (cte or coefficient) with (match or matching or matched) with meaning) | US-PGPUB; USPAT | OR | ON | 2005/09/03 19:13 |
| S6 | 126 | S5 and (("257"/\$3.cor.) or ("438"/\$3.cor.)) | US-PGPUB; USPAT | OR | ON | 2005/09/03 19:13 |
| S37 8 | 52 | S377 and (("257"/\$3.cor.) or ("438"/\$3.cor.)) | US-PGPUB; USPAT | OR | ON | 2005/09/03 19:14 |
| S37 7 | 167 | ((heat\$1sink or (heat adj sink)) with (cte or coefficient) with (match or matching or matched)) | US-PGPUB; USPAT | OR | ON | 2005/09/03 19:14 |
| S38 2 | 162 | S381 and (("257"/\$3.cor.) or ("438"/\$3.cor.)) | US-PGPUB; USPAT | OR | ON | 2005/09/03 19:15 |
| S38 0 | 6 | S379 and (("257"/\$3.cor.) or ("438"/\$3.cor.)) | US-PGPUB; USPAT | OR | ON | 2005/09/03 19:15 |
| S37 9 | 37 | ((heat\$1sink or (heat adj sink)) with (support) with (match or matching or matched)) | US-PGPUB; USPAT | OR | ON | 2005/09/03 19:15 |
| S37 4 | 41 | "4788627" and (@ad<"20040703" or @rlad<"20040703") | US-PGPUB; USPAT | OR | ON | 2005/09/03 19:16 |
| S38 1 | 906 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with (match or matching or matched)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 11:57 |
| S38 5 | 126 | S384 and (@ad<"20040703" or @rlad<"20040703") | US-PGPUB; USPAT | OR | ON | 2005/09/05 11:58 |
| S38 3 | 159 | S382 and (@ad<"20040703" or @rlad<"20040703") | US-PGPUB; USPAT | OR | ON | 2005/09/05 11:58 |
| S38 6 | 40 | S385 and (@ad<"20040703" or @rlad<"20040703") and (ball or bga) | US-PGPUB; USPAT | OR | ON | 2005/09/05 11:59 |
| S38 8 | 0 | "20020171144".did. and ((match or matching or matched) with substrate) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:04 |
| S38 4 | 128 | ((heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with (match or matching or matched) with substrate) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:04 |
| S39 0 | 1 | "20020171144".did. and (cte or coefficient) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:05 |
| S38 9 | 0 | "20020171144".did. and ((match or matching or matched)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:06 |

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| S39 5 | 1 | "20020171144".did. and (substrate) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:07 |
| S39 4 | 1 | (tape with (match or matching or matched) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:07 |
| S39 2 | 0 | ((cte or coefficient) with tape with (match or matching or matched) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug) with (match or matching or matched)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:07 |
| S39 1 | 1 | "20020171144".did. and (material with substrate) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:07 |
| S39 6 | 31 | ((cte or coefficient) with (ceramic or plastic) with (match or matching or matched) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:08 |
| S38 7 | 22 | S385 and (@ad<"20040703" or @rlad<"20040703") and (ball\$1grid or (ball adj grid) or bga) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:08 |
| S39 3 | 0 | ((cte or coefficient) with tape with (match or matching or matched) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:10 |
| S40 1 | 4 | ((cte or coefficient) with equal with (match or matching or matched) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:11 |
| S40 0 | 0 | ((cte or coefficient) with equal with (match or matching or matched) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | EPO; JPO; DERWENT | OR | ON | 2005/09/05 12:11 |
| S39 9 | 0 | ((cte or coefficient) with substrate with equal with (match or matching or matched) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | EPO; JPO; DERWENT | OR | ON | 2005/09/05 12:11 |

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| S398 | 1 | ((cte or coefficient) with substrate with equal with (match or matching or matched) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:42 |
| S397 | 2 | S396 and (@ad<"20040703" or @rlad<"20040703") and (ball\$1grid or (ball adj grid) or bga) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:43 |
| S407 | 13 | S406 and (ball\$1grid or (ball adj grid) or bga) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:47 |
| S405 | 18 | S404 not S403 | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:47 |
| S403 | 3 | S402 and (@ad<"20040703" or @rlad<"20040703") and (ball\$1grid or (ball adj grid) or bga) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:47 |
| S408 | 0 | (polysilicon adj support adj substrate) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:48 |
| S406 | 1084 | (polysilicon adj substrate) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:48 |
| S402 | 21 | ((("same" adj material) with substrate with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:52 |
| S412 | 7 | S409 not S411 | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:53 |
| S411 | 21 | ((("same" adj material) with substrate with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:53 |
| S410 | 28 | S409 not "s4023" | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:53 |
| S409 | 28 | ((("same" adj (material or metal or alloy or composite)) with (substrate or carrier or support) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:55 |

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| S413 | 28 | ((("same" adj (material or metal or alloy or composite or epoxy or dielectric or insulation or insulating or ceramic or insulator)) with (carrier or substrate or carrier or support) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:57 |
| S415 | 49 | S414 not S409 or S411 | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:58 |
| S404 | 21 | S402 and (@ad<"20040703" or @rlad<"20040703") | US-PGPUB; USPAT | OR | ON | 2005/09/05 12:58 |
| S420 | 12 | S419 not (S414 or S409 or S411) | US-PGPUB; USPAT | OR | ON | 2005/09/05 13:02 |
| S419 | 40 | S418 and (@ad<"20040703" or @rlad<"20040703") | US-PGPUB; USPAT | OR | ON | 2005/09/05 13:02 |
| S418 | 40 | ((("both" near (composed or made or constructed or constructing or form or forming or formed or construct or used or use or using)) with (carrier or substrate or carrier or support) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 13:02 |
| S417 | 28 | S416 and (@ad<"20040703" or @rlad<"20040703") | US-PGPUB; USPAT | OR | ON | 2005/09/05 13:02 |
| S416 | 28 | S414 not (S409 or S411) | US-PGPUB; USPAT | OR | ON | 2005/09/05 13:02 |
| S414 | 28 | ((("both" near (composed or made or constructed or constructing or form or forming or formed or construct)) with (carrier or substrate or carrier or support) with (heat\$1spreader or (heat adj (sink or spreader or slug)) or heat\$1sink or heat\$1slug)) | US-PGPUB; USPAT | OR | ON | 2005/09/05 13:02 |